

## **PROPOSED TECHNICAL PURCHASE DESCRIPTION (TPD) FOR DISHWASHER DETERGENTS**

### **1. SCOPE**

This technical description (TPD) covers a solid, liquid, and a granular, non-chlorinated, machine dishwashing compound (without sanitizing properties), suitable for use in dishwashing machines, designed for afloat use by the Navy, equipped with or without detergent dispensing equipment. The compounds are designed to provide clean ware and glasses under heavy soil loads in soft to hard water when used at recommended ware washing conditions.

### **2. UNIT OF ISSUE**

1. Four (4) Five (5) pound cans per container per case.
2. Five (5) lb box per case.
3. 20 packs per container per case.
4. Four (4) one gallon per case.

(Suggested units of issue. Other units of issue will also be considered and not limited to the units listed below.)

### **3. REQUIREMENTS**

**3.1 Solubility.** The solid and granular dishwashing detergents shall be completely soluble in water at temperatures 140°-160°F.

#### **3.2 Physical Properties**

##### **3.2.1 Physical Properties of Granular Detergent**

The granular dishwashing compound shall meet the requirements of Table I.

**Table I. Physical Properties of Powder Detergent**

Characteristic	Min	Max	ASTM Method
Moisture Content	---	5.0	D 460
Total silicates (as SiO <sub>2</sub> )	4.0	17.0	D 800
Available chlorine	---	None	D 2022
Total alkalinity (as Na <sub>2</sub> O)	35.0	45.0	D 800
pH (1% aqueous solution)	11.5	13.0	E 70
Particle size:			D 502
Retained on No. 16 sieve	---	10.0	
Retained on No. 170 sieve	90.0	---	

##### **3.2.2 Physical Properties of Liquid and Solid Detergents**

The liquid and solid dishwashing detergents shall meet the requirements of Table II.

**Table II. Physical Properties of Liquid and Solid Detergents**

Characteristic	Min	Max	ASTM Method
Total silicates (as SiO <sub>2</sub> )	4.0	17.0	D 800
Available chlorine	---	None	D 2022
Total alkalinity (as Na <sub>2</sub> O)	35.0	45.0	D 800
pH (1% aqueous solution)	11.5	13.0	E 70

### 3.2.3 Phosphates

When the manufacturer's recommended amount of dishwashing detergent is diluted in the dishwasher, the elemental phosphorous in the total volume of the dishwasher shall not exceed 0.5% by weight.

## 3.3 Prohibited Materials

### 3.3.1 Carcinogens and Toxins

The materials used in the dishwashing detergent shall not contain any known or suspected human carcinogens in concentrations equal to or greater than 0.1% (by weight) as defined in: Code of Federal Regulations 29 CFR 1910.1000 Series, Occupational Safety and Health Administration (OSHA) Subpart Z Regulated Carcinogens/Toxic and Hazardous Substance List (latest edition); International Agency for Research on Cancer (IARC) Groups 1, 2A, and 2B (latest edition); and the latest annual report of the National Toxicology Program's (NTP) of Known to be Human Carcinogens, and Reasonably Anticipated to be Human Carcinogens.

### 3.3.2 Reproductive Hazards

The materials used in the dishwashing detergent shall not contain the following occupational reproductive hazardous chemicals if used in concentrations equal to or greater than 0.1 percent (by weight): acetohydroxamic acid, aminopterin, arsenic, benomyl, benzene, bromoxynil, cadmium, carbon disulfide, carbon monoxide, chlordecone, cyanazine, cycloheximide, cyhexatin, dinocap, dinoseb, 1,2-dibromo-3-chloropropane, m-dinitrobenzene, o-dinitrobenzene, p-dinitrobenzene, epichlorohydrin, ethylene glycol monoethyl ether, ethylene glycol monoethyl ether acetate, ethylene glycol monomethyl ether, ethylene monomethyl ether acetate, ethylene oxide, hexachlorobenzene, hydroxurea, lead, mercury and mercury compounds, methyl bromide, methyl mercury, nickel carbonyl, polybrominated biphenyls, polychlorinated biphenyls, 2,3,7,8-tetrachloro-dibenzo-para-dioxin, toluene, and warfarin and any other chemical species listed in OPNAVINST 5100.23, Chapter 29, Appendix 29-B. The most current version of the instruction can be obtained from the internet website: <http://www.navosh.net>.

### 3.3.3 Preferable Characteristics

The product not containing alkyl phenyl ethoxylates (APEs) listed below will be favored over products that do contain them. The acceptance of products that contain these chemicals for shipboard application will be dependent on the amount present in the listed formulation.

### **3.3.4 Dyes and Fragrances**

The product shall contain no undesirable nor unnecessary dyes and fragrances.

### **3.3.5 Hazardous Waste**

The material used in dishwasher detergent shall not be classified as hazardous waste in accordance with 40CFR 261.

### **3.4 Biodegradability**

The dishwasher detergent shall be water soluble in fresh or salt water, dilution biodegradable, and readily decomposed by naturally occurring microorganisms. Biodegradability shall be a minimum of 50% in 23 days when tested in accordance with EPA/OPPTS Test Guidelines 835.3110 or 835.3120. (Other commercially acceptable test methods may be considered as an alternate. If historic documentation for the biodegradability test is available for the individual components of the product formulation, this information will also be accepted in lieu of the specified cleaning product.)

### **3.5 Cleaning Efficiency**

When prepared as directed on the label, the solution shall have a cleaning efficiency rating of 3 or less when tested as specified in ASTM D3556-85 – Standard Test Method for Deposition on Glassware During Mechanical Dishwashing (Other commercially acceptable test methods may be considered as an alternate.)

### **3.6 Material Safety Data Sheets (MSDSs)**

The contracting activity shall be provided a material safety data sheet with each contract bid/proposal or prior to contract award. The MSDS shall be provided in accordance with the requirements of FED-STD-313 and 29 CFR 1910.1200, Hazardous Communication Standard. The MSDS shall be included with each shipment of the material covered by this TPD. The MSDS must be current version for the product.

### **3.7 Shelf Life and Maximum Age on Delivery**

The product shall have a minimum shelf life of 36 months and be no greater than 5 months from the manufacturing date when received by the supply system.

### **3.8 Aquatic Toxicity**

The product shall not be toxic to aquatic life as measured by test methods found in 40 CFR Part 797, Subpart B, and determined by meeting the following three criteria for acute (Daphnia or fish), acute (algae), and chronic (Daphnia) effects:

Acute: EC50 Daphnia (48 hr.) >10mg/L; or LC50 fish (96hr.) > 10 mg/L.

Acute: EC50 algae (96 hrs) > 10 mg/L

Chronic: EC50 Daphnia (21-day or > 10 mg/L 15 day minimum).

### **3.9 Containment and Labeling**

The dishwashing detergent shall be furnished in new, non-returnable, commercial type, factory-sealed containers. All containers shall be labeled with labeling impervious to the contents of the container. Labeling can be accomplished by printing directly on the

container or by attaching a paper label or tight-fitting sleeve-type on a plastic container designed to receive and hold sleeve-type labels. Labels shall not be easily removed from the container. Labels shall give adequate use instructions and toxicity warning, skin irritants, if applicable. Labels shall meet all federal regulation requirements of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard in 29 CFR 1910.200 and the Federal Hazardous Substances Act. Each container shall be durable and legibly marked with directions for use and the following precautions:

Caution: May be Harmful if Swallowed. Avoid contact with eyes. If concentrated liquid is splashed in eyes, flush thoroughly with water and seek medical attention. If swallowed, drink large amounts of water, induce vomiting and seek medical attention.

## **4. REGULATORY REQUIREMENTS**

### **4.1 Volatile Organic Compounds (VOCs)**

VOC levels of the product must be stated as a % of VOCs by weight when prepared in the dilution ratio as directed on the manufacturer's label and shall not exceed 10% in accordance with 40 CFR parts 9 and 59.

### **4.2 Recycling**

The contractor is encouraged to use recovered materials in accordance with Public Law 94-580 to the maximum extent practicable.

### **4.3 EPA Regulations**

The product must meet applicable federal specifications as specified in the Food Quality Management Act. In order to be safely used on food processing equipment, utensils and other food contact articles, the product shall be used only as specified by the manufacturer.

## **5. Quality Assurance Provisions**

### **5.1 Contractor Certification**

The contractor shall certify and maintain substantiating evidence that the product offered meets the salient characteristics of this TPD and that the product conforms to the producer's own drawings, specifications, standards, and quality assurance practices and is the same product offered for sale in the commercial market place. The Government reserves the right to require proof of such conformance prior to first delivery, and thereafter as may be otherwise provided for under the provisions of the contract.

### **5.2 Market Acceptability**

The following market acceptability criteria are necessary to document the quality of the product to be provided under this TPD:

1. The company furnishing the product must have been producing a product meeting the requirements of this technical purchase description for at least 6 months.
2. The Government reserves the right to require proof of such conformance.

## **6. Packaging**

### **6.1 Preparation for Delivery**

The item(s) shall be packaged and packed in accordance with the latest revision of ASTM D 3951, Standard Practice for Commercial Packaging unless specified in the contract or purchase.

## **7. Source of Documents**

7.1 Copies of the Code of Federal Regulation (CFR) and Federal Acquisition Regulation (CFR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington DC, 0402.

Website: <http://www.access.gpo.gov/nara/cf/cfr/cfc-table-search.html>

7.2 Copies of Federal Standards and Specifications may be obtained from the Standardization Document Order Desk, 700 Robbins Avenue. Website: <http://www.dodssp.daps.mil>.

7.3 Copies of ASTM test methods may be obtained from the American Society for Testing and Materials, 100 Barr harbor Drive, West Conshohocken, PA 19428-2959. Website: [www.astm.org](http://www.astm.org).

7.4 Copies of the most recent Annual Report on Carcinogens may be obtained from the U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, P.O. Box 12233, Research Triangle Park, NC 27709. Website: HYPERLINK <http://ntp-server.niehs.nih.gov/NewHomeRoc/AboutRoC.html>

7.5 Copies of all IARC publications are available directly from IARC PRESS, 150 Cours Albert Thomas, F-69372 Lyon cedex 08, France (Fax: +33 472 73 83 02; E-mail [press@iarc.fr](mailto:press@iarc.fr))

7.6 Copies of Public Law 95-580 "Resource Conservation & Recovery Act" (RCA) may be obtained from Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

7.7 Copies of EPA/OPPTS test methods may be obtained directly from EPA Website: [www.epa.gov/opptsfrs/home/opptism.htm](http://www.epa.gov/opptsfrs/home/opptism.htm).

Need FDA reference